

Deployment Health and Family Readiness Library



Preventing Leishmaniasis

For Service members and their Families

Important Facts

- Leishmaniasis is a serious, but preventable health threat to some deployed U.S. Service members.
- The Department of Defense (DoD) Insect Repellent System is the safest, most effective way to protect against biting insects that may carry diseases such as leishmaniasis.
- No vaccine or preventive drug is currently available for leishmaniasis; however, highly effective treatment for those who become infected is available.
- If you are deployed to areas of the world where leishmaniasis is present and are experiencing symptoms as described below, you should seek medical attention as soon as possible.

sores may be painful and may form scabs. The sores can change their appearance over time, and may develop the shape of small "volcanoes" with a raised edge and central crater. Sometimes, people have swollen lymph glands near



Source: USACHPPM

Sand Fly Feeding on Human Skin

What is leishmaniasis?

Leishmaniasis (leash' ma NIGH' a sis) is a parasitic disease transmitted by infected sand flies most commonly causing skin sores (cutaneous form) or affecting the internal organs (visceral form). A rarer form (mucocutaneous) affects the linings of the nose, lips, mouth, and throat and generally occurs after the skin disease has begun. Mucocutaneous leishmaniasis is mainly found in Central and South America. Over 2 million cases of leishmaniasis occur worldwide every year.

How can a person get leishmaniasis?

Leishmaniasis is spread by the bite of infected sand flies that carry the parasite. Sand flies are very small insects, about one-third the size of mosquitoes. They can be hard to see. Sand flies can bite anytime, more commonly at night. Sand flies become infected by feeding on infected animals like dogs and rodents and infected people. Person-to-person transmission by blood transfusion and sexual contact has been reported, but is rare.

Where can exposure occur?

Leishmaniasis is particularly a problem in Southwest Asia, the Middle East, East and North Africa, and Central and South America.

What are the signs and symptoms of cutaneous leishmaniasis (skin form)?

People who get the skin form (cutaneous) develop one or more sores on the skin several weeks or months after the parasite enters the body through the bite of an infected sand fly. These

the sores. If untreated, the sores can last for years and cause permanent, disfiguring scars.

What are the signs and symptoms of visceral leishmaniasis (internal form)?

People who get the internal form (visceral) may develop signs and symptoms 10 days to several years after exposure. Symptoms include fever that comes and goes, enlargement of the spleen and liver, reduced number of red and white blood cells, and progressive weight loss and weakness over months or years. If untreated, internal leishmaniasis can cause severe health problems and can be life threatening to people with other serious illnesses or weakened immune systems.

Are leishmaniasis infections treatable?

Yes; the treatment for leishmaniasis is highly effective, but it is important to be diagnosed as early as possible so



Leishmaniasis Skin Sores

Sources: Walter Reed Army Medical Center & USACHPPM



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A collaborative effort between the Air Force Institute for Operational Health, the Deployment Health Clinical Center, Force Health Protection and Readiness, the Navy Environmental Health Center, the U.S. Army Center for Health Promotion and Preventive Medicine, and the OUSD(P&R)/Military Family and Community Policy

treatment can be started before the infection becomes severe.

What is the best way to protect Service members from getting leishmaniasis?

The best and safest way to prevent leishmaniasis is prevent sand flies from coming in contact with exposed skin. Use of the DoD Insect Repellent System is a very effective prevention method. There are no vaccines or medications which prevent leishmaniasis.

What is the DoD Insect Repellent System?

The DoD Insect Repellent System is a multi-step approach that uses permethrin, which is applied only to clothing, and DEET, which is applied to exposed skin. When steps are taken to avoid insects, keep skin covered, and use permethrin-treated bed nets, this system provides maximum, safe protection from bites by sand flies, other insects, and arthropods such as ticks.

What is Permethrin?

Permethrin, is an insecticide that is **applied only to clothing and bed nets**. It kills or repels most insects (and other arthropods) upon contact with the uniform fabric or bed nets. Do not apply permethrin to skin, undergarments, or uniform cap.

What is DEET?

DEET (chemical name, N,N-diethyl-meta-toluamide) is the most effective repellent against insects. Apply DEET to uncovered/exposed skin and under the ends of sleeves and pant legs. DEET can be used with sunscreen, but it may reduce the amount of time sunscreen effectively blocks the sun's harmful UV rays. To minimize this effect, apply sunscreen approximately 30 minutes to 1 hour prior to applying the DEET so that the sunscreen has time to penetrate and bind to the skin. Sunscreen does not reduce the effectiveness of the DEET.

The DoD Insect Repellent System Steps:

(1) *Wear permethrin treated uniforms.* If not using uniforms pre-treated by the manufacturer with permethrin, treat uniforms (except for Nomex uniforms such as flight suits) with permethrin

clothing repellent and allow them to dry BEFORE putting them on. Do not treat pre-treated uniforms. Two self-treatment options are available. The first option is to use the Impregnation Kit (NSN 6840-01-345-0237) to treat one uniform. The treatment lasts for the life of the uniform (at least 50 washes). The second option is to use the aerosol can of permethrin (NSN 6840-01-278-1336). Each can treats one uniform, and the treatment lasts through 5-6 washes. (2) *Wear the uniform properly.* Wear a shirt and roll down shirt sleeves. Tuck pants into boots with the blousing cords drawn tight. Tuck undershirt into pants. These measures will help protect the skin from all biting insects. (3) *Apply DEET to exposed skin.* Apply a thin coat of long-lasting DEET insect repellent lotion (NSN 6840-01-284-3982) to all EXPOSED skin. One application lasts for up to 12 hours, depending on the climate and how much you perspire. Follow all label directions.

Other Methods for Protection against Insects

- Avoid insects. If possible, do not go outside during the times that insects most frequently feed (bite); in the case of mosquitoes and sand flies the risk is highest between dusk to dawn.
- Sleep/rest under a permethrin treated bed net.
- Do not use after-shave lotion, cologne, perfume, or scented deodorants/soaps while in the field. The odors may attract insects.
- Wash and inspect your body for insects and their bites daily, or as often as the tactical situation permits. Wash your uniform to remove insects and their eggs.

Contacts and More Information:

- DoD Helpline for Veterans and Family Members:
 - U.S. Toll Free: 1-800-796-9699
 - From Europe Toll Free: 00800-8666-8666
 - Outside U.S. DSN: 312-662-3577
- Center for Disease Control (CDC):
<http://www.cdc.gov/ncidod/dpd/parasites/leishmania/default.htm>

Where Do I Get More Information?

Air Force Institute for Operational Health (AFIOH)
Phone: (888) 232-3764
<http://www.brooks.af.mil/afioh/>

DoD Deployment Health Clinical Center (DHCC)
Phone: (866) 559-1627
<http://www.pdhealth.mil/>

DoD Force Health Protection & Readiness (FHP & R)
Phone: (800) 497-6261
<http://fhp.osd.mil>

Navy Environmental Health Center (NEHC)
Phone: (757) 953-0700
<http://www-nehc.med.navy.mil>

U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM)
Phone: (800) 222-9698
<http://chppm-www.apgea.army.mil/news/Leishmaniasis.asp>

Armed Forces Pest Management Board
Phone: (301) 295-7476
<http://www.afpmb.org>



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